Bank of Greece Seminar

The Changing Dynamics of Financial Services

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Athens, February 13th, 2012

Summary of an impossible task: Speaking about the Future of Financial Services

- Start with the phenomenon – how we got to the crisis
  - What the story was, and explain how *structures* changed
  - Explain what happened, and weave in the new theory / approach
- Continue with a-has for theory, regulators, practice
  - Selectively drawing on the research paper (comments please) & report
  - Emphasize role of industry architecture, feedback, business models
- End on a "state of the sector" discussion and crystal ball
  - Update on policy discussions and strategy sessions going on
  - Wrap up with "something for everyone" – but *not* on the Greek project
  - (Do visit www.redesigngreece.org next week though. And lets speak!)

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Changes in the macro-environment
Every good party has a hangover. But what's next?

- The last two decades were a period of excessive leverage
  - Fixed income innovations at the forefront of this change (and revenues)
  - New ways of packaging debt led to changes in total indebtedness
- Banks helped spun growth in FI and related products
  - Deviation from the macro trends being reversed through de-leveraging
  - Demand is qualitatively changing following the crisis (for how long?)
- FI explosion, derivatives and sophistication brought about profits
  - Happened for a long time- but can it persist? Needs have changed
  - Regulation a major driver in re-shaping the FS context

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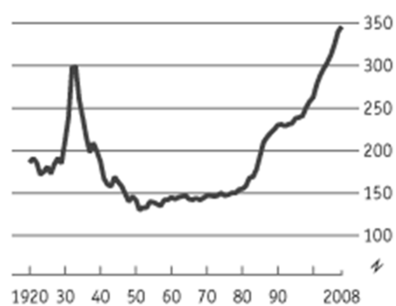
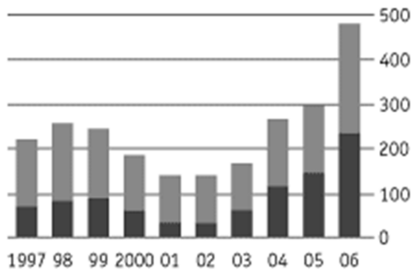
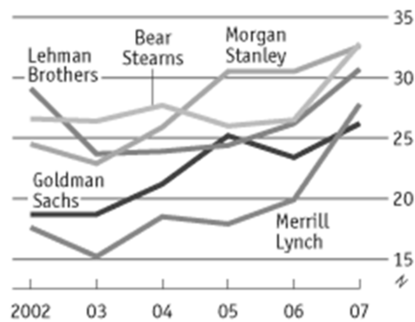
Debt



Leverage in companies and firms…





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All this had led to profits too high to be true…

Note: Financial services and insurance accounted for 7.8% of U.S. GDP in 2009.

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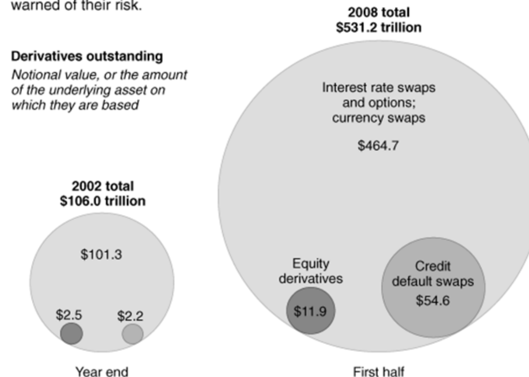
With banks being able to take good advantage of it



How did we get here? Redefining the nature of FS

- A major driver of the collapse was how institutions changed
  - New ways of making money, new boundaries, new "architectures"
- Innovation, especially on the wholesale/funding side
  - Which sadly went unsupervised and misunderstood...
  - ...as did the perverse incentives that came with it
- Structural changes amplified by macro-imbalances
  - Needs changing, location of supply and demand of credit changing....
  - ...so lets see "the crisis in a slide"!

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Sun-belt
vs Iron-belt

Mismatch between
savings & loans

Don’t give a damn
about tomorrow

Securitization

Wholesale funding

Ratings
Crucial

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How Xerox 2400 brought the financial system to its knees

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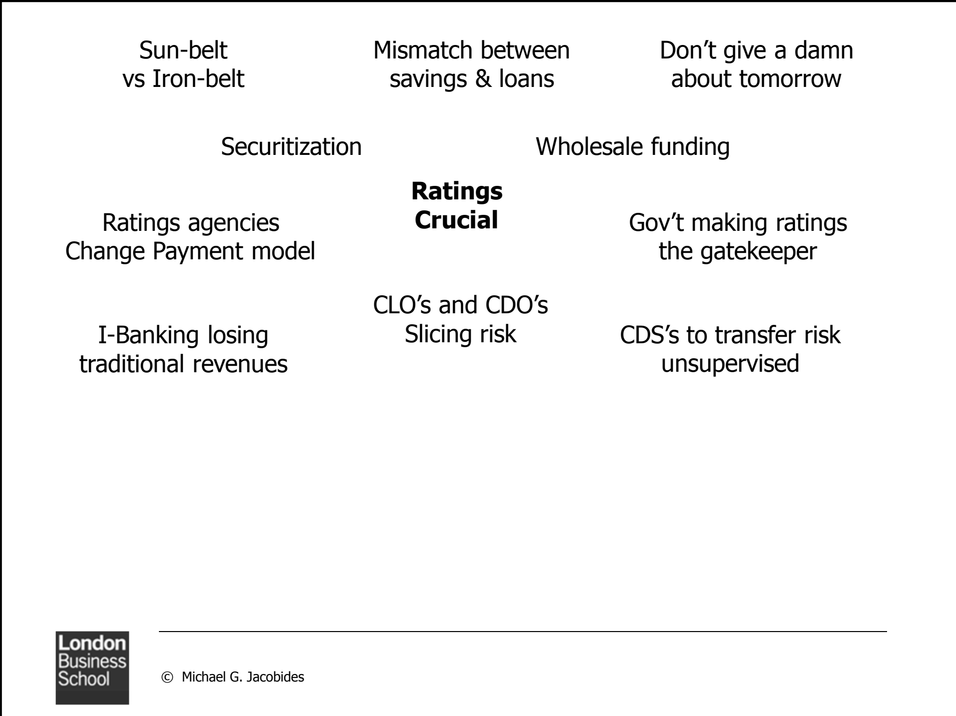
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Ratings agencies
Change Payment model
Gov't making ratings
the gatekeeper
CLO's and CDO's
Slicing risk
I-Banking losing
traditional revenues
CDS's to transfer risk
unsupervised
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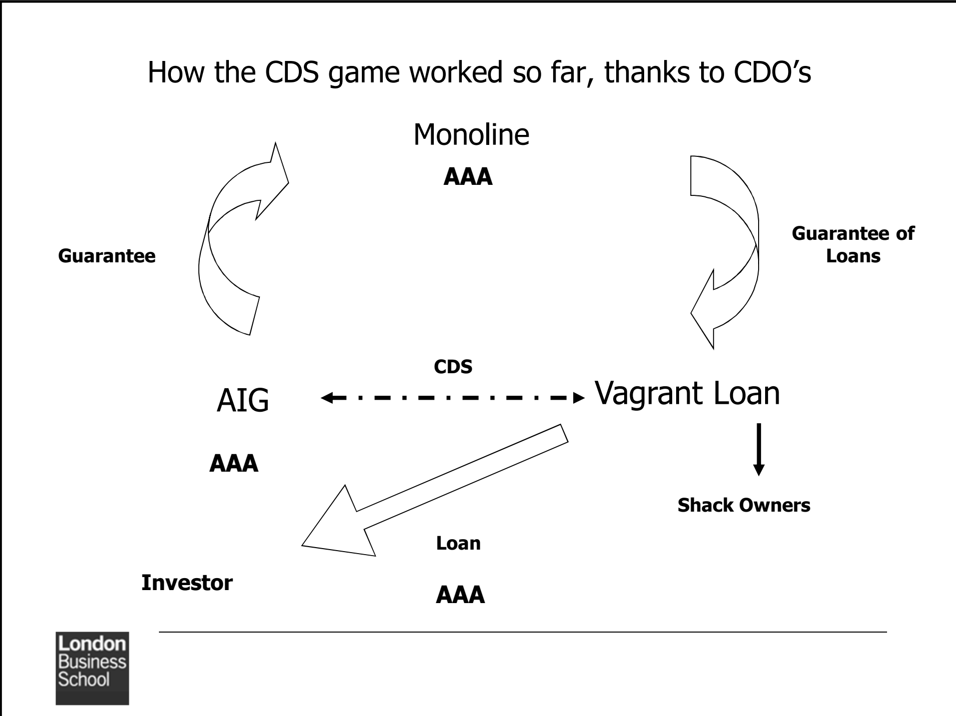
How the CDS game worked so far, thanks to CDO's
Monoline
AAA
Guarantee
Guarantee of
Loans
CDS
AIG
Vagrant Loan
AAA
Shack Owners
Loan
Investor
AAA
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…leading to a need for mega-insurer bailouts…

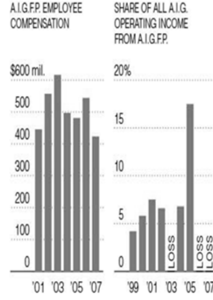
An Insurance Giant, Brought Down

A tiny unit at American International Group …

The world's largest insurer was brought to the edge of bankruptcy by its small London unit A.I.G. Financial Products, which sold complex financial contracts, called credit derivatives.

… was well compensated …

… for generating a significant share of revenue …



Those derivatives had been a big source of revenue for A.I.G., which paid the roughly 400 people in that office an average of more than $1 million a year.

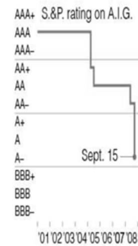
… from selling contracts that protected clients from losses on debt.

A.I.G.F.P. insured $513 billion of debt against default using credit-default swaps. $78 billion worth of insured debt was affected by the decline in the U.S. housing market.

But as certain debt losses mounted, A.I.G. was forced to increase its own financial cushion and write down the value of some of its own holdings …

Initially, A.I.G.'s high credit rating meant no collateral was required to sell the insurance. Because of the way the derivatives contracts were written, A.I.G. was forced to increase the amount of money on hand as the value of the debt declined.

… ratings agencies punished the company, ultimately forcing it into a downward spiral.



When A.I.G.'s credit ratings were downgraded Sept. 15, the need for more money on hand increased beyond what it could borrow, and it asked the Federal Reserve for help.

Source: A.I.G. company reports

THE NEW YORK TIMES

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Sun-belt vs Iron-belt

Mismatch between savings & loans

Don't give a damn about tomorrow

Securitization

Wholesale funding

Ratings Crucial

Ratings agencies Change Payment model

Gov't making ratings the gatekeeper

CLO's and CDO's Slicing risk

I-Banking losing traditional revenues

CDS's to transfer risk unsupervised

Hedge funds changing the model

Banks "originate to distribute"

Banks leverage hedge funds (AAA)

Demand for loans leading to lax standards

"The market will figure it out"

Changing compensation within firms...

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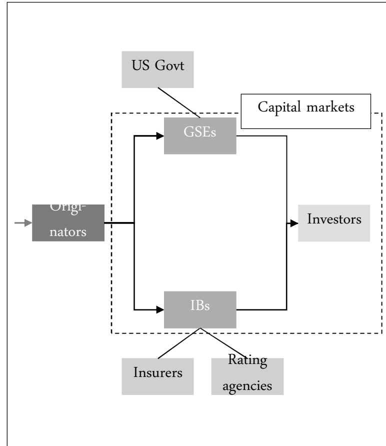
Anatomy of the crisis

Structure of US mortgage market



Timing of the crisis

- Home prices stop appreciating (2006) and begin to fall (1H2007)
- MBS spreads begin to widen and then accelerate as defaults pick-up (mid-07)
- Securitization markets shut down (2H07)
  - IBs and investors face large write-downs
  - Mortgage originators begin to fail as they lose ability to sell on mortgages
- Lack of new mortgage financing causes home sales to fall and puts continued pressure on home prices (creating vicious circle) (2008)
- Ultimately, collapsing home prices imperil entire financial system (2H08)

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Mortgage brokers drove subprime originations as lending practices and standards deteriorated (1 of 2)

Non-banks drove sub-prime originations

2006 subprime origination volume ▭ Non-Comml. Bank

Rank	Lender	Volume ($B)	Share (%)
1	HSBC (HF)	52.8	8.8
2	New Century	51.6	8.6
3	Countrywide	40.6	6.8
4	Citigroup	38.0	6.3
5	WMC	33.2	5.5
6	Fremont	32.3	5.4
7	Ameriquest	29.5	4.9
8	Option One	28.8	4.8
9	Wells Fargo	27.9	4.6
10	First Franklin	27.7	4.6
Subtotal – top 10		$362.4	60.4%
TOTAL		$600.0	100.0%

Source: Inside Mortgage Finance (2007)

Bad practices proliferated:

- Increasing reliance on non-traditional mortgage structures that lowered initial payments, e.g.
  - IOs (interest-only)
  - ARMs
- Declining underwriting standards
  - Borrowers had lower credit ratings
  - Borrowers provided smaller down-payments
- Negligent (sometimes fraudulent) underwriting practices, e.g.
  - NINJA (No-Income-No-Job-or-Assets)

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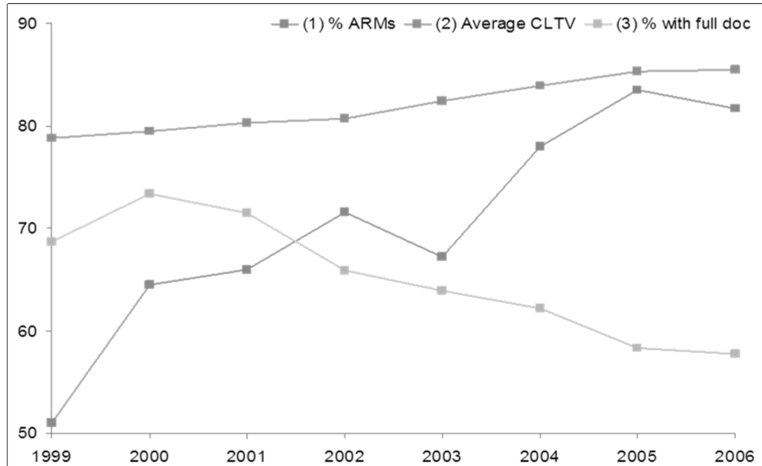
Mortgage brokers drove subprime originations as lending practices and standards deteriorated (2 of 2)

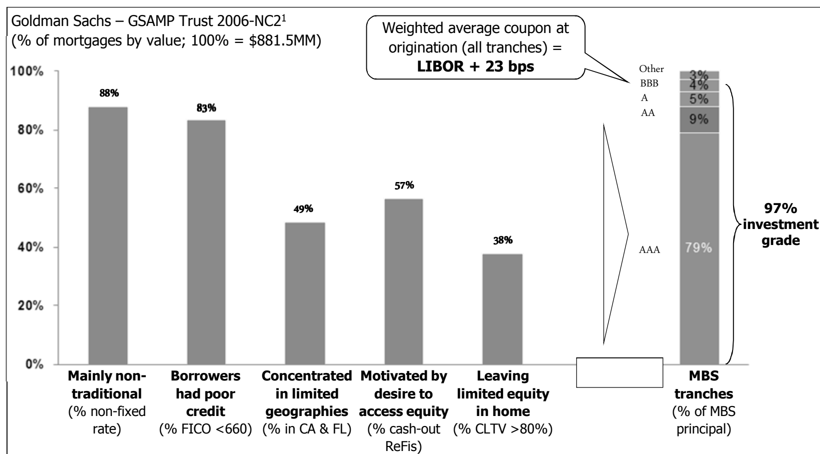
Underwriting characteristics of loans in sub-prime MBS pools



Source: LoanPerformance estimates (2007), as reported in "Understanding the Securitization of Subprime Mortgage Credit, FRBNY (2008)

Rating agencies allowed the conversion of these subprime mortgages into investment-grade securities

Typical subprime mortgage MBS pool and structure



1 2Q2006 Goldman Sachs-led securitization of 3,949 subprime mortgages originated by New Century Financial
Source: "Understanding the Securitization of Subprime Mortgage Credit, FRBNY (2008)

These securities' credit ratings depended on a number of questionable assumptions

Key rating agency assumptions:

- Appreciating home prices
  Assumed that national housing prices would continue to rise
- Low and constant default correlation
  Assumed default correlation would be uniform across all securitized pools
- Relevance of consumer credit scores
  Relied on credit scores
- Reliable underwriting
  Assumed reported borrower characteristics were accurate

AAA-rated MBS sensitivity to default probabilities

Default probability	Rating
5.0%	AAA
7.5%	AAA
10.0%	A+
12.5%	BBB-

Baseline

- **36.9%** of subprime mortgages currently:
  - 90+ days past due
  - In foreclosure, or
  - Repossessed by bank

Source: "The Economics of Structured Finance", HBS Working Paper (2009); FirstAmerican CoreLogic, LoanPerformance Data, U.S. Census Bureau, and Federal Reserve Bank of New York

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The potential effect of changing house price assumptions on ratings

2007 discussion between mutual fund and Fitch

MF: "What are the key drivers of your rating model?"

Fitch: "FICO scores and home price appreciation of low single digit or mid single digit, as home price appreciation has been for the past 50 years."

MF: "What if home price appreciation was flat for an extended period of time?"

Fitch: "Our model would start to break down."

MF: "What if home prices were to decline 1% to 2% for an extended period of time?"

Fitch: "The models would break down completely."

MF: "With 2% depreciation, how far up the rating's scale would it harm?"

Fitch: "It might go as high as the AA or AAA tranches."

Source: "The Economics of Structured Finance", HBS Working Paper (2009)

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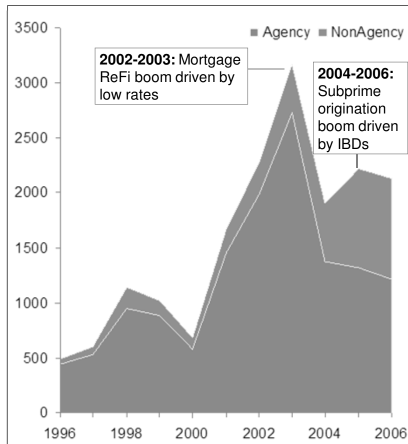
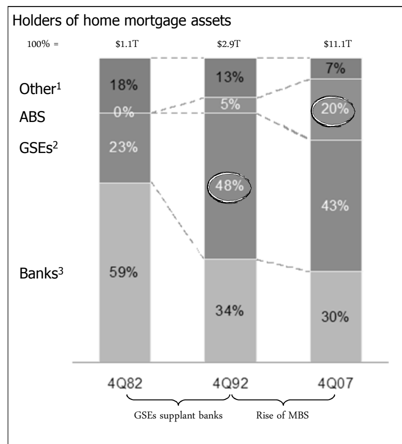
These mortgage-backed securities were then sold into the capital markets & banks' share of mortgage loans fell sharply

Annual issuance of mortgage-related debt ($B)



Source: SIFMA

Banks' share of home mortgage assets fell sharply



1 Primarily finance companies, life insurance companies, and households
2 Includes mortgages held by GSEs (4% 4Q07) and Agency- and GSE-backed mortgage pools (39% 4Q07)
3 Includes savings institutions and credit unions
Source: Federal Reserve Flow of Funds

Different types of investors bought these mortgage securities for varying purposes

Long-term investors (~40%)

- Non-Agency MBS

  Offered superior yields to other AAA credits in low rate environment

Banks (~30%)

- Agency MBS

  US commercial banks & thrifts for Asset-Liability-Management purposes (partially due to 0% risk-weighting)

- Non-Agency MBS:

  US bank-holding companies for superior yield

  Investment banks as inventory to feed securitization (also structured conduits to hold AAA off balance sheet)

  Non-US banks (primarily European) held due to low risk-weighting under Basel 2

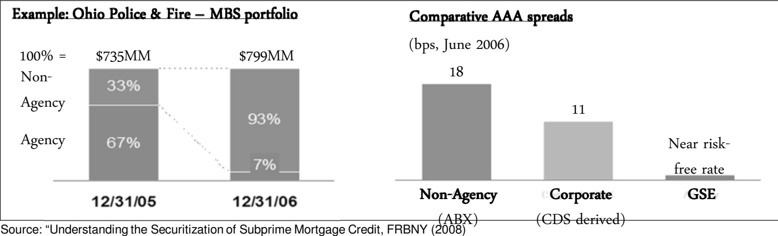
Foreign governments (~10%)

- Another form of USD reserves backed by implicit Full Faith & Credit of US Government

Source: % of MBS held estimated by JPMorgan Chase based on analysis from "Addicted to Credit," Citi Global Markets (2009)

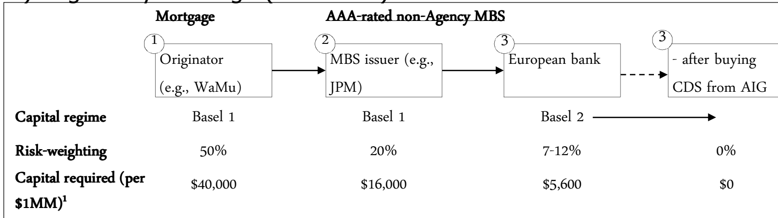
Examples of MBS investors' motivations

1) Improving yield for High Grade-restricted investors



Source: "Understanding the Securitization of Subprime Mortgage Credit, FRBNY (2008)

2) Regulatory arbitrage (illustrative)



	Originator (e.g., WaMu)	MBS issuer (e.g., JPM)	European bank	- after buying CDS from AIG
Capital regime	Basel 1	Basel 1	Basel 2 →	
Risk-weighting	50%	20%	7-12%	0%
Capital required (per $1MM)[1]	$40,000	$16,000	$5,600	$0

1 Assuming 8% tier 1 capital ratio
Source: JPMorgan Chase & Co.

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So what is the story here? And what's new? (academically?)

- New business model pushes people to find new ways to make $
  - Establishment and acceptance of new "rules and roles"
- Supervisors *not looking into the changing business models*
  - Geithner and Dimon's team story: What competencies do we have?
  - Biases of macro-economics and finance: Too much on the black box
- Changing industry architectures change behaviours and evolution
  - Selection mechanism is blind. And, if we tweak it, it responds
  - Allowing endogenous change means we are selecting for the reckless

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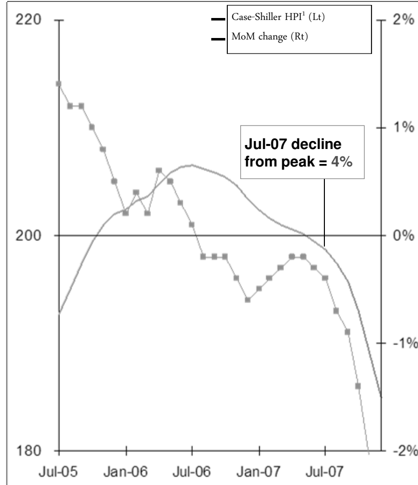
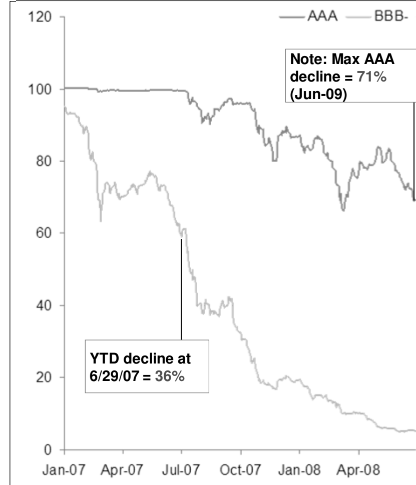
1-2) House prices begin to stall and MBS prices fell dramatically

Prices stalled in 2006 and then began falling in 1H07



1 20-city composite (Jan-00 = 100)
Source: S&P

And prices of non-AAA subprime MBS fell (ABX 06-2)



Source: Markit

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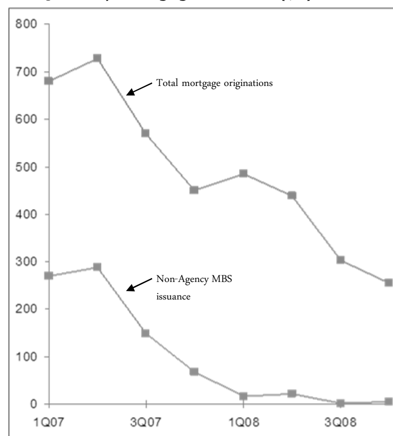
3-4) Non-bank brokers failed as securitization markets closed; new mortgage lending then dried up

Quarterly mortgage volumes ($B)



Source: Inside Mortgage Finance; SIFMA

8 of top 10 2006 sub-prime originators closed by 2009

Rank	Lender	Comment
1	HSBC Finance	Ends originations, Mar -09
2	New Century	Files for bankruptcy, Apr-07
~~3~~	~~Countrywide~~	Emerg. loan from BAC, Aug-07
4	Citigroup	
5	WMC	Ends originations, Oct-07
6	Fremont General	Files for bankruptcy, Jun-08
~~7~~	~~Ameriquest~~	Ends originations and, Aug-07
~~8~~	~~Option One~~	Ends originations, Dec-07
9	Wells Fargo	
~~10~~	~~First Franklin~~	Ends originations, Mar-08

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FannieMae ECONOMICS AND MORTGAGE MARKET ANALYSIS

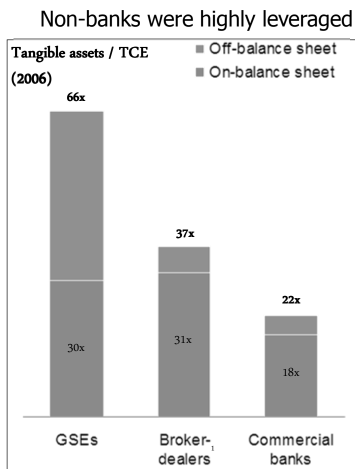
Timely Quote

"We Californians have learned something. And that is that home prices can't just go up forever—they have to be supported by something. **Never again will Californians make this mistake**."

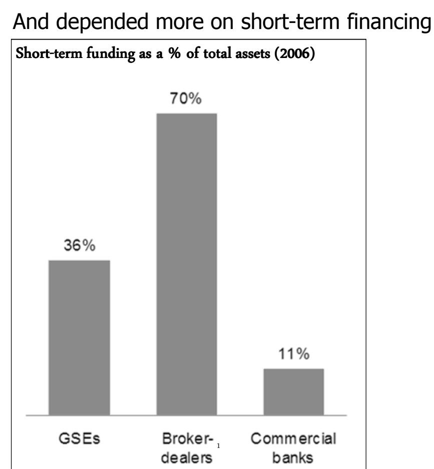
-*LA Times*, 1886, after the 1885 LA housing bubble

5) Non-banks were both highly leveraged and reliant on short-term financing

Non-banks were highly leveraged



And depended more on short-term financing



1 Weighed average for BSC, GS, LEH, ML, and MS
Source: McKinsey Global Institute

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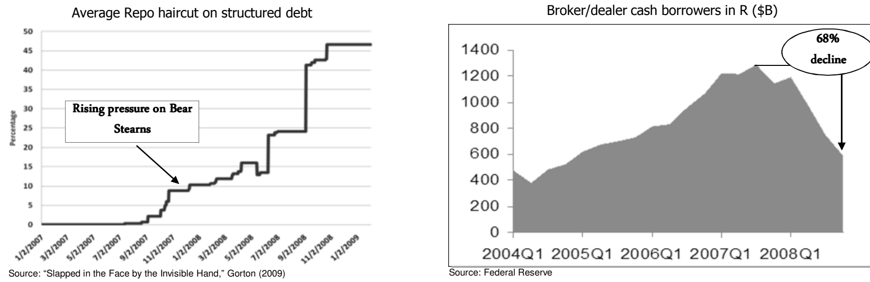
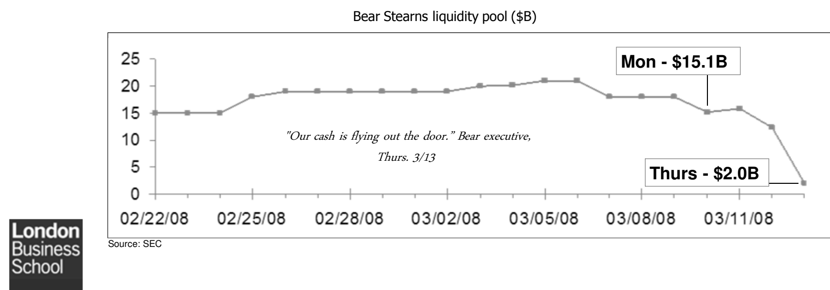
5) Rising Repo haircuts on structured debt (e.g., MBS) led to liquidity crises for institutions relying on ST funding





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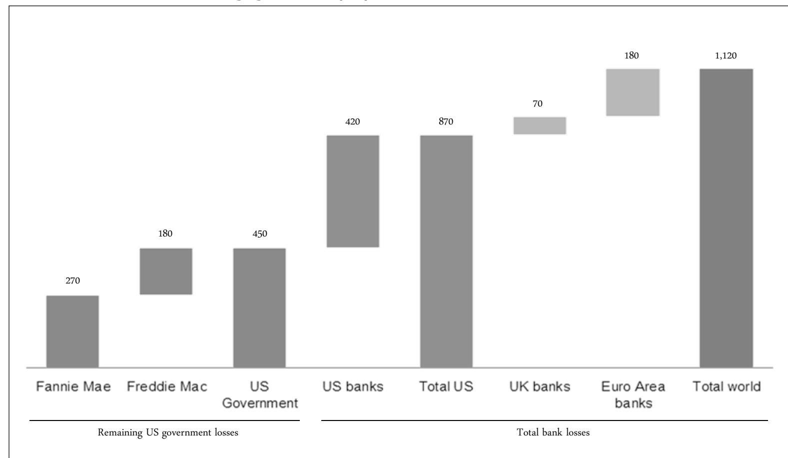
5) Ultimate losses from residential mortgages are estimated at >$1T

Estimated residential mortgage losses ($B)



Source: "Global Financial Stability Report," IMF (Oct. 2009); GSE losses from Amherst Securities (Jan. 2010)

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5) Global lifetime credit losses on US originated assets under the "more adverse" scenario could approach $4.4T

12/31/08 US originated assets ($ Trillion)[1]

	12/31/08 Balances ($T)	Expected Losses			
		2 Year % [2]	2 Year ($T)	Estimated Lifetime % [3]	Estimated Lifetime ($T) [3]
Res Mortgages	11.0	8.6%	0.9	14.3%	1.6
C&I Loans	7.3	7.0%	0.5	8.8%	0.6
CRE Loans	4.1	10.1%	0.4	12.6%	0.5
Credit Cards	1.0	19.3%	0.2	32.2%	0.3
Other Consumer	1.6	10.7%	0.2	17.8%	0.3
Other Loans	0.8	8.0%	0.1	10.0%	0.1
Total	**$25.8T**	**8.9%**	**~$2.3T**	**13.2%**	**~$3.4T**
2007 - 2008 Losses on US originated assets [4]			~$1.0		~$1.0
		Estimated 2007-2010 losses	**~$3.3T**	**Estimated Lifetime losses**	**~$4.4T**

US banks	**~30%**
Foreign banks and SWFs:	**~30%**
Investors:	**~20%**
GSEs:	**~20%**

[1] Total US Credit balance outstanding is $52.6 trillion. Analysis excludes US Treasury Securities, municipal securities and loans, foreign issued loans, and financial sector borrowing
[3] 2-year loss rate based on 2/3 towards the high-end of SCAP adverse loss rate range for each loan category. Exact formula used: Loss rate used = (low range + 2 x high range)/3 for each asset category
[3] Lifetime losses assume 2-year consumer losses represent ~60% of lifetime losses and 2-year wholesale losses represent ~75% of lifetime losses
[4] Represents global losses on US-originated assets (Source: December 17, 2008 Bloomberg article)

Source: Balances from Federal Reserve Flow of Funds Accounts of the United States; 2-year loss rates from Supervisory Capital Assessment Program Guidance February 26, 2009; Lifetime losses based on JPM internal estimate; 2007-2008 losses per December 17, 2008 Bloomberg article

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Only 6 of the original 14 institutions are still in business (and with a market capitalization of <50% of 3 years ago)

	Institution	CEO (12/06 vs. 02/10)		Mkt cap (12/06 vs. 02/10)1	
Large commercial banks	**Citigroup**	Prince	Pandit	$273.6	$97.4
	Bank of America	~~Lewis~~	Moynihan	239.8	137.4
	JPMorganChase	Dimon	Dimon✓	167.6	157.8
	Wells Fargo	~~Kovacevich~~	Stumpf	120.0	131.3
	X Wachovia	~~Thompson~~	to WFC	114.5	
Investment banks	**Morgan Stanley**	~~Mack~~	Gorman	$85.4	$37.3
	Goldman Sachs	Blankfein	Blankfein✓	84.9	84.8
	X Merrill Lynch	~~O'Neal~~	to BAC	82.0	
	X Lehman Brothers	~~Fuld~~	bankrupt	41.4	
	X Bear Stearns	~~Cayne~~	to JPM	23.7	
Government Sponsored Enterprises	**X Fannie Mae**	~~Mudd~~	to US Govt	$57.9	
	X Freddie Mac	Syron	to US Govt	47.0	
Mortgage-focused thrifts/brokers	**X Wash. Mutual**	~~Killinger~~	to JPM	$42.7	n/a
	X Countrywide	~~Mozilo~~	to BAC	26.4	n/a

[1] Market cap as of 12/31/2006 & 2/19/2010

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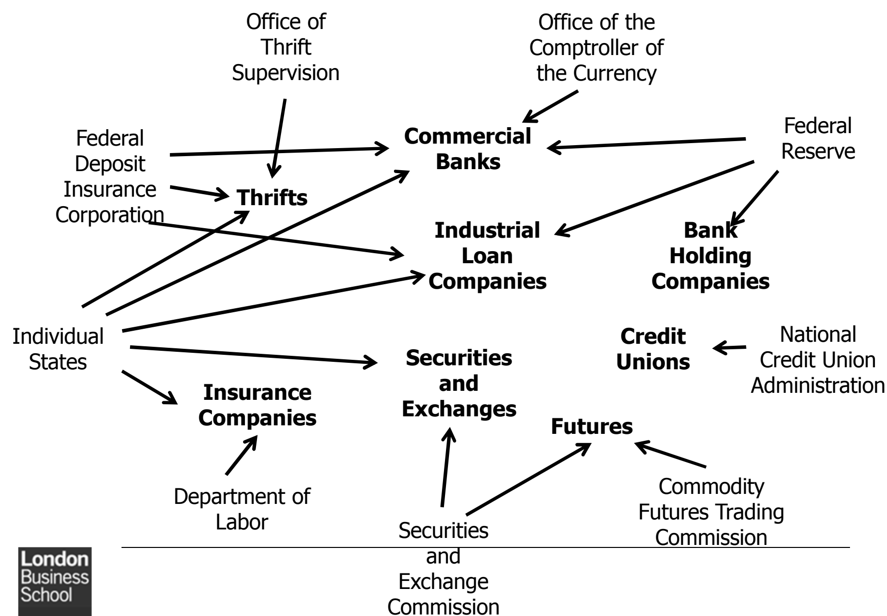
✓ Same CEO as on 12/31/2006

Regulatory Balkanization: The US example



So what is the story here? And what's new? (academically?)

- **Feedback, not foresight, drives economic behaviour**
  - You may know it's all nuts, as the GS traders did. But feedback rules
  - Threat of bankruptcy is too distant to drive behaviour
- Feedback is set as a result of the industry architectures
  - New feedback mechanisms both between and within institutions
  - FS are very dangerous as feedback may be (generally *is)* delayed
- Innovations that change Feedback are inherently risky
  - Take the money and go is to be expected in these instances
  - Severing realization of downside and upside not a good idea

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What can we take away from this, then?

- Considering industry architectures and business model matters
  - We need to map out rules, roles, relationships
  - Banks *and* shadow sector need to be considered
- As regulators, we need to tool up to study our sector
  - Competencies in business models and sectoral dynamics
  - Find better ways to connect to the sector, lest it die on you
- As bank executives consider our strategy in context
  - Needed both to survive and to justify our existence
  - We're starting to navigate a fiendishly complex landscape. Rethink!

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Where things are now, in practice: The regulatory battlefield in the UK

- Independent Banking Commission- Volker redux?
  - Potentially substantial impact on how banks and the City works
- The new FSA (BoE) and aggressive micro-prudential views
  - Let alone potential anti-trust concerns
- New regulators, tougher rules- and changes to the retail side
  - As well as greater transparency/ regulation for products & services

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...and where the market seems to stand

- Compensation concerns far from over
  - Banks, the public, and the difficult task of curtailing excess
- Innovation no longer synonym of progress
  - Even if we need it, a more careful approach seems warranted
- Winds of change on many levels- leading to global uncertainties
  - Return of economic nationalism? Reviving the fight for financial capitals...

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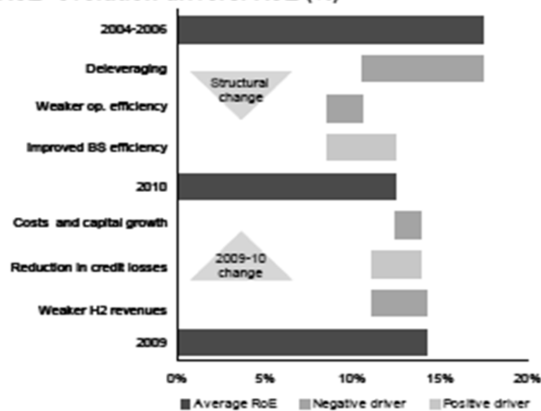
What about banks? After the bubble burst, stuff started hurting



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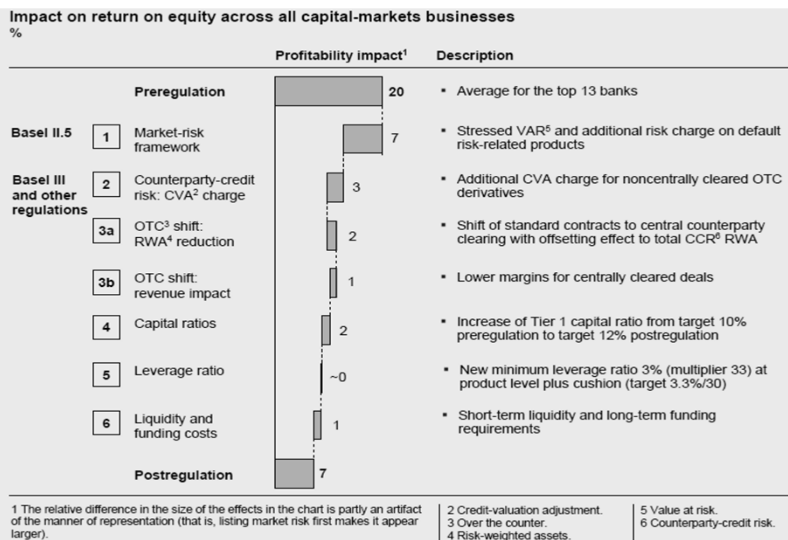
Along comes a new profit mop: Basel III



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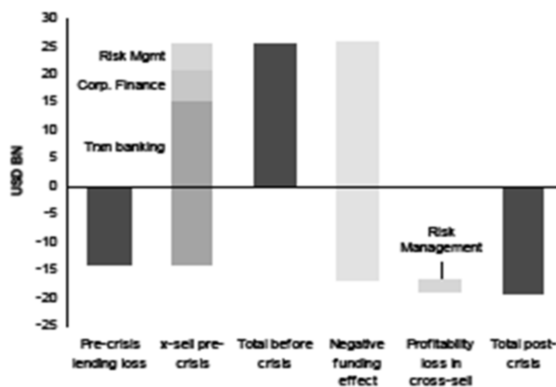
Basel III changes economics of the business (and cross-subsidies)



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It's not just Basel III

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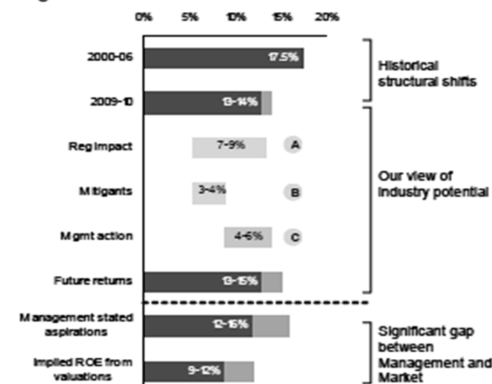
which is leaving the market (rationally?) unconvinced

Exhibit 1

Market is assuming corporate and investment banking divisions will fail to make management targets or what banks have made in 2009-10



Source: Oliver Wyman, Morgan Stanley Research, Company reports
Management targets include: Barclays, Credit Suisse, HSBC, Standard Chartered, JPMorgan, Soc Gen

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It's not just regulation.
It's also uncertainty, and more to come.

- Downturn will accentuate. People will be angry.
  - Politicians love scape-goats. And we all know bankers are *very* evil.
- Nationalizations in Europe are all but certain
  - All of Greece's banking system; part of SocGen, BNP, German Banks…
  - ...and the rest of the PIIGS, *and* others. (Mark to market changes?)
- Litigation may stat becoming rampant. Noticed reserves?
  - And changes in society means *our clients become more sensitive*
  - Whom clients work with and what they demand changes
- Major drivers of the crisis (ratings agencies and their quasi-regulatory license) untouched. Scandalous!!

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Geopolitics and Supply & Demand trends not on our side:
Need to think what tomorrow will bring

- Secular shift to the East means more business – *and* other norms
  - Companies in new growth markets have different needs
  - European bank retreat opening up Asia. A different world dawns.
- Changes in demand and supply of capital lead to new landscape
  - New sources and uses of funds- and new *demands* from clients
  - Deleveraging and different attitudes of capital providers (supply)
- Expectations from investors also coming in the mix
  - Risk in banking becoming more expensive
  - *Capital and liquidity becoming scarce, so different things matter*
  - *For the first thing, comp pressures are real. Look at Barclays….*

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One of the (many) views on strategic change- McKinsey & Co

Source of value	New business model	Initiatives
Scale	**Flow-driven universal bank**	▪ Improve business economics through platform scale ▪ Provide broad product offering for clients, with aspiration to a top position in flow products ▪ Expand and leverage Tier 1 institutional client franchise
Franchise	**Franchise bank**	▪ Develop deep corporate and institutional (Tier 2/Tier 3) client franchise in large home or multilocal markets ▪ Penetrate client franchise with standardized but comprehensive product set (with some white labeling) ▪ Develop selected lighthouse product offering for Tier 1 institutional clients based on local expertise (eg, local credit)
	New corporate bank	▪ Provide product offering based on corporate client needs ▪ Increasingly leverage infrastructure provided by industry utilities or global banks
Risk	**New investment bank**	▪ Differentiate through risk-management capabilities and offer innovative, tailored solutions ▪ Build leading-edge risk-management/product-structuring capabilities ▪ Target top global institutional clients

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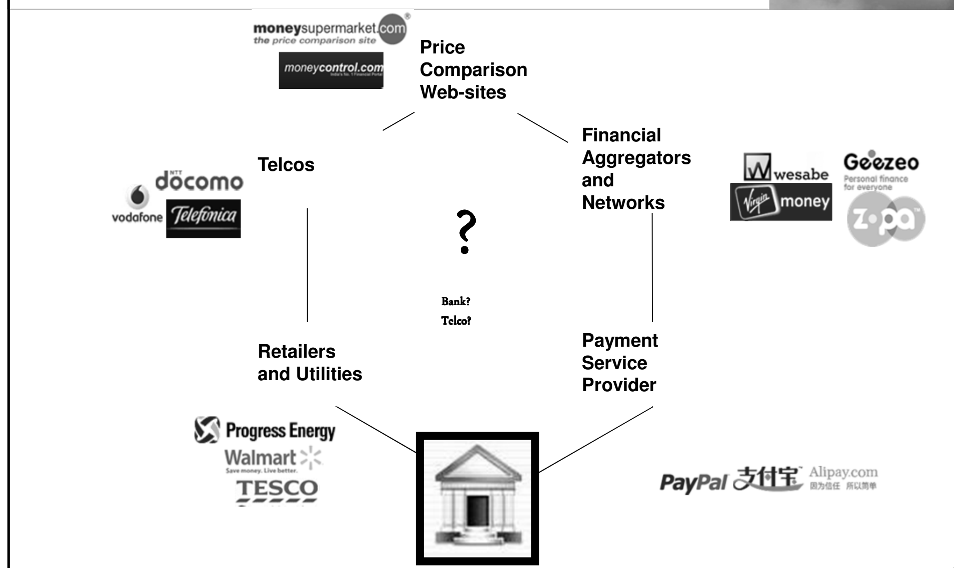
Banks could position themselves at the center of an alliance "eco-system", but there will be significant new non-banking competition (Accenture)



What can we do? UK's Houses of Parliament meetings (Session following on from the WEF/LBS/AIM set of dinners)

- Debate on how to restructure FS overly emotive – and partisan?
  - Limited frank discussion between policy, industry, and legislators
- Execs from different perspectives did come together effectively
  - Being able to speak outside our "formal hats" useful and constructive
- Some of the issues underpinning the crisis not well understood
  - Especially those relating to the changing business models in FS
  - Research link to ongoing work in LBS/AIM: Changes in business models (and regulation) leading to our current troubles, most of these not fully addressed yet. Much remains to be understood – and done!

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(Replicating the discussion of the HoP breakfast) Current state of affairs in the sector

- Following the IBC report, legislation will follow
  - Need to ensure that we have a thorough, forward looking debate
- Systemic issues remain- and we need to "future proof" now
  - Input from participants crucial, as is an effective way to add it up
- We are re-writing the sector's rules, with broad implications
  - As we do so, potential locus of concern shifts: A mounting concern
  - We should take a broad view to consider the architecture of the sector and not just banks; what this means for systemic stability; and what this implies for profit, competitiveness and sustainability

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(1) Compensation: WEF/HoP Summary

- Perception that the problem is endemic is skewed
  - So let's focus on the small number of high paid executives
  - Of these, a small number takes on risk. Mostly trade / market making
- In trading, *both* shadow cost of capital and compensation matter
  - Also, pay of high-performing traders matter trumps CFO/CEO issues
  - Yet short-term pressures to keep teams and talent significant
- Career progression as a collective (*not* bank-by-bank) problem
  - People focus on relative rewards: Could we take advantage of this?
  - No one bank car reform (easily) alone- and, governance is short-term
  - Out of the box thinking: Guidelines? Relative pay? Pricing reform? But- adverse side effects? Risk shifting to other, equally deadly firms?

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(2) Segregation/ Ring-fencing: WEF/HoP Summary

- TBTF / SIFI vs implied subsidy for I-Banking vs post-crisis resolve
  - Size and scope are two distinct issues (eg, S&L crisis in the US)
  - Focus on size distracting us from systemic stability & business models
- Ring-fencing as a solution? The devil is in the details
  - Before we consider them though, need clarity on what it can offer
  - And, for ring-fencing to work, what should the governance be?
- Broader issues of inter-connectedness still remain
  - While some risks may be attenuated, many remain
  - Role of narrow entities in past crises (Countrywide, AIG, Lehmann) & in future crises merit more attention, if stability is our key objective

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Some crystal-ball gazing as the world changes- and another chance to say what you think

- Which of the assumptions so far are violated with sovereign crisis?
  - If the guarantor cant guarantee, are TBTF's BETSU's instead?
  - How can we address the sovereign-bank dependence vicious circle?
  - How does the dependence on the FS as a country play in? (UK and CH's bad news vs US)
- How would a BRIC sputtering affect the stability of the system?
  - Over and above ratings and triggers, what else might play in?
  - How can changes in politics affect strategy & the sector architecture?
- How will the world look given the turmoil in Europe?
  - The need to refresh our lenses as academics, regulators, executives

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What an Australian Jewel Beetle can teach us

Julodimorpha bakewelli

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